

THE ASTROPHYSICAL JOURNAL
CONTENTS OF VOLUME 293, PART 1

1985 JUNE 1, Number 1

	Page	Fiche
STELLAR WEAK INTERACTION RATES FOR INTERMEDIATE-MASS NUCLEI. IV. INTERPOLATION PROCEDURES FOR RAPIDLY VARYING LEPTON CAPTURE RATES USING EFFECTIVE LOG (<i>ft</i>)-VALUES <i>George M. Fuller, William A. Fowler, and Michael J. Newman</i>	1	58-A6
SMALL-SCALE ANGULAR FLUCTUATIONS IN THE MICROWAVE BACKGROUND RADIATION AND THE EXISTENCE OF ISOLATED LARGE-SCALE STRUCTURES IN THE UNIVERSE <i>L. J. Goicoechea and J. L. Sanz</i>	17	58-B8
PULSAR MAGNETOSPHERES IN BINARY SYSTEMS <i>A. I. Ershkovich and J. F. Dolan</i>	25	58-C2
THREE-DIMENSIONAL STRUCTURES OF MAGNETOSTATIC ATMOSPHERES. I. THEORY <i>B. C. Low</i>	31	58-C8
AXISYMMETRIC EXPANSION OF A ROTATING ADIABATIC GAS <i>B. C. Low</i>	44	58-D7
EXTRAGALACTIC VARIABLE RADIO SOURCES <i>P. A. Sturrock</i>	52	58-E1
SPECTRA OF GAMMA-RAY BURSTS <i>J. M. Hameury, J. P. Lasota, S. Bonazzola, and J. Heyvaerts</i>	56	58-E5
CLUSTER REDSHIFTS IN FIVE SUSPECTED SUPERCLUSTERS <i>Robin Ciardullo, Holland Ford, and Richard Harms</i>	69	58-F6
MINKOWSKI'S OBJECT: A STARBURST TRIGGERED BY A RADIO JET <i>Wil van Breugel, Alexei V. Filippenko, Timothy Heckman, and George Miley</i>	83	58-G11
THE DYNAMICS OF FOUR MULTIPLE-NUCLEI BRIGHTEST CLUSTER GALAXIES <i>John G. Hoessel, Kirk D. Borne, and Donald P. Schneider</i>	94	59-A10
HOT CORONAE AROUND EARLY-TYPE GALAXIES <i>W. Forman, C. Jones, and W. Tucker</i>	102	59-B9
MORE SPECTROSCOPY OF THE FUZZ AROUND QSOs: ADDITIONAL EVIDENCE FOR TWO TYPES OF QSO <i>Todd A. Boroson, S. E. Persson, and J. B. Oke</i>	120	59-C13
BUBBLES AND JETS IN THE CENTER OF M51 <i>Holland C. Ford, Patrick C. Crane, George H. Jacoby, David G. Lawrie, and Jan Mathijs van der Hulst</i>	132	59-D13
THE IRAS GALAXY 0421+040P06: AN ACTIVE SPIRAL (?) GALAXY WITH EXTENDED RADIO LOBES <i>C. Beichman, C. G. Wynn-Williams, C. J. Lonsdale, S. E. Persson, J. N. Heasley, G. K. Miley, B. T. Soifer, G. Neugebauer, E. E. Becklin, and J. R. Houck</i>	148	59-F8
CARBON-ENRICHED STELLAR ENVELOPES: NUCLEI OF PLANETARY NEBULAE AND R CORONAE BOREALIS STARS <i>I.-Juliana Sackmann and Arnold I. Boothroyd</i>	154	59-G1
FAR-INFRARED OBSERVATIONS OF YOUNG CLUSTERS EMBEDDED IN THE R CORONAE AUSTRALIS AND RHO OPHIUCHI DARK CLOUDS <i>B. A. Wilking, P. M. Harvey, M. Joy, A. R. Hyland, and T. J. Jones</i>	165	60-A1
STATISTICAL ANALYSIS OF ASTRONOMICAL DATA CONTAINING UPPER BOUNDS: GENERAL METHODS AND EXAMPLES DRAWN FROM X-RAY ASTRONOMY <i>J. H. M. M. Schmitt</i>	178	60-A12
STATISTICAL METHODS FOR ASTRONOMICAL DATA WITH UPPER LIMITS. I. UNIVARIATE DISTRIBUTIONS <i>Eric D. Feigelson and Paul I. Nelson</i>	192	60-B12
THE STAR-FORMATION HISTORY OF VERY YOUNG CLUSTERS <i>Steven W. Stahler</i>	207	60-C13
STAR FORMATION IN ROTATING, MAGNETIZED MOLECULAR DISKS <i>Ralph E. Pudritz</i>	216	60-D8
DEPLETION OF ELEMENTS IN THE INTERSTELLAR MEDIUM <i>P. M. Gondhalekar</i>	230	60-E8
THEORETICAL INVESTIGATION OF THE INTERSTELLAR CH ₃ NC/CH ₃ CN RATIO <i>D. J. DeFrees, A. D. McLean, and Eric Herbst</i>	236	60-E14

	Page	Fiche
ADSORPTION AND RECOMBINATION OF HYDROGEN ATOMS ON A MODEL GRAPHITE SURFACE <i>S. Aronowitz and S. Chang</i>	243	60-F7
POSSIBLE CONSEQUENCES OF GAS ACCRETION FOR THE INITIAL MASS FUNCTION OF STAR CLUSTERS <i>Graeme H. Smith</i>	251	60-G1
THE SOBOLEV APPROXIMATION FOR LINE FORMATION WITH CONTINUOUS OPACITY <i>D. G. Hummer and George B. Rybicki</i>	258	60-G8
SURFACE CONDITIONS IN ACCRETING NEUTRON STARS <i>Masayuki Y. Fujimoto and Reion Hoshi</i>	268	61-A4
MASS LOSS FROM EVOLVED STARS. IV. THE DUST-TO-GAS RATIO IN THE ENVELOPES OF MIRA VARIABLES AND CARBON STARS <i>G. R. Knapp</i>	273	61-A9
MASS LOSS FROM EVOLVED STARS. V. OBSERVATIONS OF THE ^{12}CO AND ^{13}CO $J = 1-0$ LINES IN MIRA VARIABLES AND CARBON STARS <i>G. R. Knapp and K. M. Chang</i>	281	61-B4
DETECTION OF A COMPACT COMPANION OF THE MILD BARIUM STAR ζ^1 CETI <i>Erika Böhm-Vitense and Hollis R. Johnson</i>	288	61-B12
AN ANALYSIS OF THE BRIGHT WHITE DWARF CD $-38^\circ 10980$ <i>J. B. Holberg, F. Wesemael, G. Wegner, and F. C. Bruhweiler</i>	294	61-C4
THE NEW ECLIPSING MAGNETIC BINARY SYSTEM E1114+182 <i>P. Biermann, G. D. Schmidt, James Liebert, H. S. Stockman, S. Tapia, H. Kühr, P. A. Strittmatter, S. West, and D. Q. Lamb</i>	303	61-C14
IUE RESULTS ON THE AM HERCULIS STARS CW 1103, E1114, AND PG 1550 <i>Paula Szkody, James Liebert, and Robert J. Panek</i>	321	61-E5
TIME-DEPENDENT DUSTY GASDYNAMICAL FLOW NEAR COMETARY NUCLEI <i>T. I. Gombosi, T. E. Cravens, and A. F. Nagy</i>	328	61-E13
INSTRUCTIONS TO AUTHORS	i	61-F13

1985 JUNE 15, Number 2

	Page	Fiche
THE STATISTICS OF GRAVITATIONAL LENSES. II. APPARENT EVOLUTION IN THE QUASARS' LUMINOSITY FUNCTION <i>Mario Vietri</i>	343	62-C1
THE MULTIPLE IMAGES OF THE QUASAR 0957+561 <i>D. H. Roberts, P. E. Greenfield, J. N. Hewitt, B. F. Burke, and A. K. Dupree</i>	356	62-D1
THE GRAVITATIONALLY LENSED QUASAR 0957+561: VLA OBSERVATIONS AND MASS MODELS <i>P. E. Greenfield, D. H. Roberts, and B. F. Burke</i>	370	62-E4
MAGNESIUM, IRON, AND CALCIUM IN THE $z = 0.39498$ 21 CENTIMETER ABSORBER OF PKS 1229-021 <i>F. H. Briggs, D. A. Turnshek, J. Schaeffer, and A. M. Wolfe</i>	387	62-F10
HYDROXYL ABSORPTION IN NGC 520, NGC 2623, AND NGC 6240 <i>Willem A. Baan, Aubrey D. Haschick, David Buckley, and Joan T. Schmelz</i>	394	62-G3
RADIO DETECTION OF HISTORICAL SUPERNOVAE AND H II REGIONS IN M83 <i>John J. Cowan and David Branch</i>	400	62-G9
STELLAR WINDS FROM HOT STARS IN THE MAGELLANIC CLOUDS <i>Catharine D. Garmany and Peter S. Conti</i>	407	63-A3
HIGH-ENERGY ELECTRONS IN THE NONUNIFORM GALACTIC DISK MODEL <i>L. C. Tan</i>	414	63-A11
THE GLOBULAR CLUSTER SYSTEM OF THE GALAXY. IV. THE HALO AND DISK SUBSYSTEMS <i>Robert Zinn</i>	424	63-B7
[Ne II] OBSERVATIONS OF THE GALACTIC CENTER: EVIDENCE FOR A MASSIVE BLACK HOLE <i>E. Serabyn and J. H. Lacy</i>	445	63-D1
THE SPLITTING OF THE $2s^2 2p^3 \ ^2P$ TERM IN [O II] <i>M. M. De Robertis, D. E. Osterbrock, and Christopher F. McKee</i>	459	63-E1
EFFECTS OF MULTIQUANTUM TRANSITIONS ON MOLECULAR POPULATIONS IN GRAIN-FORMING CIRCUMSTELLAR ENVIRONMENTS <i>Joseph A. Nuth, Michael Wiant, and John E. Allen, Jr.</i>	463	63-E5
NEUTRON STARS ARE GIANT HYPERNUCLEI? <i>Norman K. Glendenning</i>	470	63-E11

CONTENTS

v

	Page	Fiche
DENSITY BIFURCATION IN A HOMOGENEOUS ISOTROPIC COLLAPSING STAR <i>S. Bouquet, M. R. Feix, E. Fijalkow, and A. Munier</i>	494	63-G8
ANGULAR MOMENTUM LOSS AND THE EVOLUTION OF BINARIES OF EXTREME MASS RATIO <i>Ronald E. Taam and Richard A. Wade</i>	504	64-A5
HIGH-VELOCITY GAS FLOWS ASSOCIATED WITH H ₂ EMISSION REGIONS: HOW ARE THEY RELATED AND WHAT POWERS THEM? <i>J. Fischer, D. B. Sanders, M. Simon, and P. M. Solomon</i>	508	64-A10
MOLECULAR CLOUDS ASSOCIATED WITH COMPACT H II REGIONS. II. THE RAPIDLY ROTATING CONDENSATION ASSOCIATED WITH ON 1 <i>X. W. Zheng, P. T. P. Ho, M. J. Reid, and M. H. Schneps</i>	522	64-B11
SPATIALLY RESOLVED INFRARED OBSERVATIONS OF THE RED RECTANGLE <i>J. C. Dainty, J. L. Pipher, M. G. Lacasse, and S. T. Ridgway</i>	530	64-C5
OPTICAL STUDIES OF CASSIOPEIA A. VII. RECENT OBSERVATIONS OF THE STRUCTURE AND EVOLUTION OF THE NEBULOSITY <i>Sidney van den Bergh and Karl Kamper</i>	537	64-C12
ULTRAVIOLET AND X-RAY OBSERVATIONS OF NGC 2264 <i>Theodore Simon, Webster Cash, and Theodore P. Snow, Jr.</i>	542	64-E8
THE EVOLUTION OF CHROMOSPHERIC ACTIVITY AND THE SPIN-DOWN OF SOLAR-TYPE STARS <i>Theodore Simon, George Herbig, and Ann Merchant Boesgaard</i>	551	64-F4
SIMULTANEOUS OBSERVATIONS OF Ca II K AND Mg II k IN T TAURI STARS <i>Nuria Calvet, Gibor Basri, Catherine L. Imhoff, and Mark S. Giampapa</i>	575	65-A1
ACCELERATION OF RUNAWAY ELECTRONS AND JOULE HEATING IN SOLAR FLARES <i>Gordon D. Holman</i>	584	65-A10
A NEW METHOD FOR DETERMINING TEMPERATURE AND EMISSION MEASURE DURING SOLAR FLARES FROM LIGHT CURVES OF SOFT X-RAY LINE FLUXES <i>P. L. Bornmann</i>	595	65-B7
CCD OBSERVATIONS OF COMET TUTTLE 1980. XIII. THE H ₂ O ⁺ IONOSPHERE <i>W.-H. Ip, U. Fink, and J. R. Johnson</i>	609	65-C7
ERRATUM		
THE DEPENDENCE ON DISTANCE AND REDSHIFT OF THE VELOCITY VECTORS OF THE SUN, THE GALAXY, AND THE LOCAL GROUP WITH RESPECT TO DIFFERENT EXTRAGALACTIC FRAMES OF REFERENCE <i>G. de Vaucouleurs and W. L. Peters</i>	616	65-C14
ABSTRACTS OF ASTROPHYSICAL JOURNAL SUPPLEMENT SERIES, 1985 JULY ISSUE		
PRIMORDIAL HELIUM, SPECTROPHOTOMETRIC TECHNIQUE, AND I ZWICKY 18 <i>Kris Davidson and T. D. Kinman</i>	617	65-D1
GRAVITATIONAL RADIATION FROM NONSPHERICAL INFALL INTO BLACK HOLES. II. A CATALOG OF "EXACT" WAVEFORMS <i>Loren I. Petrich, Stuart L. Shapiro, and Ira Wasserman</i>	617	65-D1
POPULATION STUDIES. I. THE BIDELMAN-MACCONNELL "WEAK-METAL" STARS <i>John Norris, M. S. Bessell, and A. J. Pickles</i>	617	65-D1
THERMODYNAMICS OF CLATHRATE HYDRATE AT LOW AND HIGH PRESSURES WITH APPLICATIONS TO THE OUTER SOLAR SYSTEM <i>Jonathan I. Lunine and David J. Stevenson</i>	618	65-D2
K-TYPE OVERCONTACT BINARIES <i>David H. Bradstreet</i>	618	65-D2
MOLECULAR LINE SURVEY OF ORION A FROM 215 TO 247 GHz ... <i>E. C. Sutton, Geoffrey A. Blake, C. R. Masson, and T. G. Phillips</i>	619	65-D3
SPECTROPHOTOMETRIC AND MODEL-ATMOSPHERE ANALYSES OF THE HOT DO AND DAO WHITE DWARFS FROM THE PALOMAR-GREEN SURVEY <i>F. Wesemael, Richard F. Green, and James Liebert</i>	619	65-D3
MICROMETER OBSERVATIONS OF DOUBLE STARS AND NEW PAIRS. XII. <i>W. D. Heintz</i>	620	65-D4
INDEX TO VOLUME 293, PARTS 1 AND 2	i	62-B1

THE ASTROPHYSICAL JOURNAL LETTERS TO THE EDITOR

CONTENTS OF VOLUME 293, PART 2

1985 June 1, Number 1

	Page	Fiche
SCALE-INVARIANT DENSITY PERTURBATIONS, ANISOTROPY OF THE COSMIC MICROWAVE BACKGROUND, AND LARGE-SCALE PECULIAR VELOCITY FIELD	Nicola Vittorio and Joseph Silk	L1 61-B2
SOME POSSIBLE REGULARITIES IN THE MISSING MASS PROBLEM	John N. Bahcall and Stefano Casertano	L7 61-B7
IRAS OBSERVATIONS OF SEYFERT GALAXIES	G. K. Miley, G. Neugebauer, and B. T. Soifer	L11 61-B11
OPTICAL ABSORPTION FROM THE HIGH-VELOCITY NEUTRAL HYDROGEN COMPLEX C IN THE SPECTRUM OF THE RR LYRAE STAR BT DRACONIS	Antoinette Songaila, Donald G. York, Lennox L. Cowie, and J. C. Blades	L15 61-C1
THE RADIUS OF A NEUTRON STAR: AN INTERPRETATION OF ABSORPTION LINES FROM X-RAY BURSTER X1636-536	Masayuki Y. Fujimoto	L19 61-C5
AN ANALYSIS OF NONRADIAL PULSATIONS OF THE CENTRAL STAR OF THE PLANETARY NEBULA K1-16	Sumner Starrfield, Arthur N. Cox, Russell B. Kidman, and W. Dean Pesnell	L23 61-C9
THE GASEOUS COMPONENT OF THE DISK AROUND BETA PICTORIS	L. M. Hobbs, A. Vidal-Madjar, R. Ferlet, C. E. Albert, and Cécile Gry	L29 61-C14
DETECTION OF RADIO CONTINUUM EMISSION FROM HERBIG-HARO OBJECTS 1 AND 2 AND FROM THEIR CENTRAL EXCITING SOURCE	Steven H. Pralgo, Luis F. Rodriguez, Salvador Curiel, Jorge Cantó, José M. Torrelles, Robert H. Becker, and K. Sellgren	L35 61-D5
THE ORION B MOLECULAR JET	D. B. Sanders and S. P. Willner	L39 61-D10
IONIZED POLYCYCLIC AROMATIC HYDROCARBONS AND THE DIFFUSE INTERSTELLAR BANDS	M. K. Crawford, A. G. G. M. Tielens, and L. J. Allamandola	L45 61-E1
THE ROTATIONAL SPECTRA OF HOCO ⁺ , HOCS ⁺ , HSCO ⁺ , AND HSCS ⁺	Peter R. Taylor and Margaret Scarlett	L49 61-E5

1985 June 15, Number 2

BIG BANG PHOTOSYNTHESIS AND PREGALACTIC NUCLEOSYNTHESIS OF LIGHT ELEMENTS	Jean Audouze, David Lindley, and Joseph Silk	L53 66-A2
A RADIO AND OPTICAL STUDY OF A JET / CLOUD INTERACTION IN THE GALAXY CLUSTER A194	Jean P. Brodie, Stuart Bowyer, and Patrick McCarthy	L59 66-A7
STRUCTURE OF SAGITTARIUS C OBSERVED AT RADIO FREQUENCIES	H. S. Liszt	L65 66-B1
EVIDENCE FOR 500 TeV GAMMA-RAY EMISSION FROM HERCULES X-1	R. M. Baltrusaitis, G. L. Cassidy, R. Cooper, J. W. Elbert, P. R. Gerhardy, E. C. Loh, Y. Mizumoto, P. Sokolsky, P. Sommers, and D. Steck	L69 66-B5
THE DECREASE WITH TIME OF THE RADIO FLUX OF THE CRAB NEBULA	Hugh D. Aller and Stephen P. Reynolds	L73 66-B9
SPECTROPHOTOMETRY OF THE SUPERNOVA 1983u IN NGC 3227	M. M. De Robertis and P. A. Pinto	L77 66-B12
VLA OBSERVATIONS OF THE 9 ₂ -10 ₁ A ⁺ METHANOL MASERS TOWARD W3(OH)	K. M. Menten, K. J. Johnston, T. L. Wilson, C. M. Walmsley, R. Mauersberger, and C. Henkel	L83 66-C3